What is claimed is:

1. A camera motion estimation apparatus for extracting a camera motion made at the time of photographing from a photographed moving picture, comprising:

a frame picture memory unit for storing a plurality of moving picture frames with one frame separated from another;

a buffer for sequentially extracting the frames stored in the frame picture memory unit and storing them;

a block division unit for dividing each of the frames stored in the buffer into a plurality of blocks;

a mean picture generation unit for generating horizontal and vertical mean pictures using the blocks obtained through the block division unit to estimate a camera motion;

a horizontal and a vertical mean picture memory unit for storing data of the horizontal and the vertical mean pictures generated in the mean picture generation unit;

a motion vector extraction unit for extracting motion vectors from the blocks using the horizontal and the vertical mean picture data stored in the horizontal and the vertical mean picture memory unit;

a motion vector memory unit for storing data of the motion vectors extracted in the motion vector extraction unit; and

a camera motion estimation unit for estimating a camera

motion using the motion vector data stored in the motion vector memory unit.

2. The apparatus according to claim 1, wherein, if said moving picture frames stored in said frame picture memory unit are color picture frames, said moving picture frames are converted into gray scale picture frames and the gray scale picture frames are stored in the buffer.

3. The apparatus according to claim 1, wherein said motion vector extraction unit comprises:

a block picture discrimination unit for converting data transmitted from the horizontal and the vertical mean picture memory unit into block pictures;

an edge extraction unit for extracting edge components from the block pictures using the block pictures converted in the block picture discrimination unit; and

a block motion vector extraction unit for extracting a motion vector of each of the block pictures from the edge components extracted through the edge extraction unit.

4. The apparatus according to claim 3, wherein said edge components extracted in the edge extraction unit includes a magnitude component and a direction component.

5. The apparatus according to claim 3, wherein said edge extraction unit can extract a number of edge components, and said block motion vector extraction unit compares the edge components with one another to thereby assign a representative value for a motion vector of the block picture.

6. The apparatus according to claim 5, wherein said block motion vector extraction unit removes edge components having a magnitude component equal to or smaller than a predetermined reference value by comparing the extracted edge components with one another to thereby assign a direction component of the highest frequency for a representative component of each block by arranging the direction components of remaining edge components of the extracted edge components.

7. The apparatus according to claim 1, wherein said camera motion estimation unit receives representative direction components of the blocks to thereby estimate the camera motion using the representative direction components.

8. The apparatus according to claim 7, wherein said representative components are temporal direction components due to characteristics of the block pictures.

9. A camera motion estimation method of extracting a camera

motion made at the time of photographing from a photographed moving picture, comprising the steps of:

dividing each of successive frames into a plurality of blocks to generate a horizontal and a vertical mean picture with respect to each of the blocks;

extracting a representative motion vector with respect to each of the blocks using the horizontal and the vertical mean picture;

estimating a partial camera motion within each of the blocks using the representative motion vectors; and

estimating an entire camera motion within the moving picture on the basis of the partial camera motions.

10. The method according to claim 9, wherein said mean picture generation step includes the steps of mapping a mean value of each horizontal line to a point of a horizontal mean picture of each block, and mapping a mean value of a vertical line to a point of a vertical mean picture of each block.

11. The method according to claim 9, wherein said partial camera motion estimation step includes the step of converting the representative motion vectors into spatial direction vectors with the number of the frames taken into consideration so as to remove temporal movement components from the representative motion vectors.

12. The method according to claim 9, wherein said entire camera motion estimation step comprises the substeps of collecting partial camera motions with respect to the blocks and assigning a camera motion of the highest frequency for the representative camera motion.